

church, has been presented.—Keeping pace in the sanitary movement, the proprietors of the Otley Waterworks have recently had their storage reservoir reconstructed. It is now sufficiently large to hold 200,000 gallons. Mr. Wm. Maston, of Otley, was the contractor, and Mr. Johnson, of Wakefield, the engineer.

Two large reservoirs, capable of holding 18,000,000 gallons, have just been completed on Rombley Moor, for Mr. T. Horsfall, of Barley Hall, for the purpose of supplying water-power to several woollen and corn-mills at Woodhead and Binley. A correspondent says, notwithstanding the unfavourable nature of the ground, and the necessarily heavy and substantial character of the embankments, &c. the works have been executed at a low cost, each cubic yard of storage room costing under 1½d. The works have been executed by Messrs. Parkinson and Roberts, contractors, Wakefield, under Mr. J. McLandborough, of Otley.—The foundation stone of a new church, in the newly-formed district of South Ossett, parish of Dewsbury, was laid on 1st inst. The church, which is of cruciform design and of decorated style, is to be built by subscription, aided by grants from the Ripon Diocesan and Incorporated Church Building Societies. The estimated cost is about 2,000l. The church is to contain 600 sittings, more than two-thirds free. Messrs. Mallinson and Healey, of Bradford, are the architects. The site (an acre of land) was given by Mr. Joseph Thorns.

In the village of Carlton, near Selby, Lord Beaumont has built a school, to accommodate 120 children, where that number are taught history, cyphering, writing, and geography, for 1d. per week each, including books and stationery. His lordship also rents another room for an infants' school, containing sixty children, taught upon the same terms. By far the greater number of children in his lordship's schools are Protestants.—At the North Yorkshire sessions, lately, the chairman said, four years ago an application was made by the inhabitants of Stockton for assistance in widening the bridge. The North Riding then voted 200l., and the county of Durham 200l., provided the inhabitants of Stockton and the district would also contribute 200l. By Act of Parliament, the Riding was not bound to widen the bridge, but the magistrates were willing in this case to render their assistance. The money was not raised, and nothing had been done. The Court, however, still express a willingness to abide by the original offer.—The town of Bedford has been thrown into a state of excitement by the service of writs on two of its aldermen for penalties of 100l. each, incurred, under the Bedford Improvement Act, for acting as commissioners, being interested parties, as shareholders of the Gas Company, and thereby contractors with themselves for lighting the town with gas.—The unusual mildness of the season has enabled the contractors for the new "People's Hall," at Colchester, to make rapid progress in the erection of this building. It was found necessary to excavate to a considerable depth for the foundation on the east side, at the north and south ends. At one part, a Roman tessellated pavement was found, 13 feet from the surface: it was covered with bones, human and animal, Roman tiles, burnt earth, and a few antiquities, none of any great value. It is anticipated that the building will be completed in less time than the terms of the contract allows.—For the acceptance of the gift of a museum offered to the Winchester Town Council by the trustees of the County Museum, 361 burgesses voted, and against it only 13. The next question will be the selection of a proper site. The vote of the burgesses was in fact one for the adoption of "the Public Libraries and Museums Act," so that we hope soon to see a good free library as well as museum erected, not only in Winchester but in other and rival towns in that quarter of the country.—The interior of St. Mary's Church, Andover, has, through the munificence of Miss Gale, been improved, by the removal of the plain glass from two windows facing the northern and southern aisles, and the substitution of two richly stained memorial windows. Each window is divided by a jamb into two lights, with circles over, containing the arms of Miss Gale, and also those of the late Dr. Goddard, for many years vicar of this parish.—The new chancel of the parish

church of Steeple Barton, just rebuilt at the expense of Viscount Clifden, improprator, was opened on Sunday last week. The eastern window is of three lights, in the decorated style; the two south and the one north windows are square-headed; the door is of oak; the floor of the chancel is composed of lozenge-shaped tiles (red and black), from the Staffordshire potteries. Preparations are making for pulling down and rebuilding the body of the church.—The Tipton factory iron-works, which have been idle for the last eight or nine months, are likely to be again put into full operation, by Messrs. Barrow and Hall, of Bloomfield. Many of the men who worked at these works have been out of regular employment ever since.—"A Lady of Birmingham" complains, in the local *Journal*, that the want of good flagged pavements and stone (not pebble) crossings is so palpable and disagreeably apparent during bad weather in Birmingham, that comment is needless. In some large towns, footways before all property must be flagged before it can be let; consequently such towns always present a neat and cleanly appearance. "In the name, then, of the ladies of Birmingham," adds the complainant, "I appeal to 'the powers that be,' to go for an act to abate the abominations I have alluded to."

GLASSY TILES, BRICKS, PIPES, AND PAVEMENTS.

THE idea of glass tiles and bricks, or even pipes and pavements, is not quite so new, perhaps, as the "ferro-vitreous" order of construction, but the following attempt is at present being made to reduce that idea to a more widely practicable and cheaper form than it may have hitherto assumed. A specification of the patent has been lodged during the week before last, and is thus reported on by the *Mechanics' Magazine*:—"J. Connop, Hyde-park, gentleman: For improvements in melting, moulding, and casting sand, 'earth, and argillaceous substances,' for paving, building, and various other purposes. Mr. Connop observes that he has discovered that part of his invention which was to have been included under the words 'earth and argillaceous substances' does not possess sufficient utility (query, novelty?) to warrant his claiming its exclusive use; and that it is his intention to apply for leave to enter a disclaimer thereof. He then goes on to state that, although the melting of sand with various fluxes is a well-known operation in the manufacture of glass, still the application of this process to the formation of bricks, slabs, steps, mantle-pieces, pipes, tubes, inverts, and such like articles adapted for paving and building purposes, and for the conveyance of liquids under streets and through land, is new, and constitutes, in fact, the invention claimed by him. The methods of, and apparatus employed in, such melting, casting, and moulding together the materials used (which are of the cheapest and commonest description), are in every respect identical with those practised and applied in the manufacture of coarse bottle-glass; but as, in this case, transparency is by no means an object, the operation of 're-fusing' is dispensed with. While in a heated state, the articles (moulded into the desired forms) are placed in annealing ovens of the ordinary circular construction, with sand or cementing matter between them, to prevent them coming in contact. The temperature of the oven is then raised to a white heat, after which it is gradually reduced.

Mr. Elliott, of Blisworth, has obtained a patent for making vitrified bricks, tiles, &c., of limestone, chalk, clay, old furnace cinders, and other plastic materials, which will melt into a liquid similar to iron, and will bear to be carried in a ladle to a sand or cast-iron mould, and in about two minutes, when set, may be taken out of the mould, and stacked one brick upon another while hot, so that they will retain the heat a sufficient time to anneal and become strong and hard. The cast-iron mould must be made to take apart. The cost of melting (by hot air blast) and moulding, reckoning coke at 30s. per ton, and coals at 15s. per ton (using two-thirds of coke to one of coals) will be about 6s. per ton. Building bricks, 17s. 6d. per thousand; paving ditto, 10s. per thousand; tiles and pipes, 6s. per thousand. The raw

material requires no further preparation, previous to melting, than drying, which may be accomplished by the aid of the waste heat from the furnace. The cost of the material will vary according to situation. The stones may be broken by the engine. The material, when fused and broken, will be worth at least 4s. per ton for road-making, as it will be equal to the hardest stone, easily broken, and impervious to moisture. In establishing a new manufactory this system is decidedly the least expensive, particularly if a steam-engine, water-mill, or other power to generate blast be already on the spot, as very little building or ground is required, a large stock in hand not being necessary, as any article can be made to order at any season of the year. The cost of the raw material and fuel will of course vary considerably in different localities; but as it will in most situations require carting, the furnace may be erected contiguous to a canal, railway, water-mill, or other convenient situation. The cost of a steam-engine and blowing machinery will be about 1300l.; hot air oven and furnace, about 60l. A trial may be easily made at any iron-foundry, as the material may be put into the furnace with the iron, and will be ready for moulding as soon as the iron is run off, which is sure to be at the bottom, being the heaviest. The greater the quantity the more fluid it will run, and the better the sample will be. Gradual cooling or annealing is absolutely necessary.

IPSWICH GRAMMAR SCHOOL COMPETITION.

I AND you will give me the opportunity of saying a few words on the above subject, as I am personally named in your last number as the unlucky premiated competitor—painful pre-eminence!

In my desire to act in good faith, I was careful that no member of the committee should see my drawings before they were sent in, and I have used no personal solicitation whatever: to the truth of this I pledge my word and honour.

Aware of the importance of executing a work of this kind, I spent much time and study in preparing my design, and I cannot understand that the fact of my being a resident of Ipswich should deprive me of the chance of success. My calculations of the cost are based upon considerable experience of such work in this locality: upon this I have staked my reputation, and am prepared to abide the consequences should I be called upon to get a contract for the execution of the work.

I trust the affair altogether may be another inducement for the more influential to discountenance architectural competition entirely. The fact of fifty-two architects having entered the list, to scramble for twenty-five guineas (a prize so inadequate to the requisite labour), and the subsequent discussions, can have added little to the public respect for the profession.

FREDERICK BARNES.

Ipswich, Jan. 22, 1851.

SIR JOHN BARROW'S MONUMENT, ULVERSTONE.

THE following description of the tower is extracted from the present number of the *Nautical Magazine*:—

The plan of the tower is circular, with a spreading base, the general form being similar to the Eddystone: the lantern, however, in this case is of the same material as the general structure, and forms a consistent architectural feature.

The structure is based on the solid limestone rock, of which the Head Hill is composed, and which was found immediately under the turf at the summit.

The ring immediately above the surface is 150 feet in circuit, being in wrought stone, and forming a set-off or base, two feet in width, from which the surrounding panorama, one of the most beautiful in England, may be contemplated in all directions.

The thickness of the wall at the surface is twelve feet six inches, intersected with a dry chamber five feet at the base. The wall diminishes in thickness from twelve feet six inches to two feet at the cornice, which is formed of massive wrought limestone.

The whole of the lantern and dome is formed